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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/668,385

09/23/2003

M. Kelly Lalonde

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11/15/2005

Leslie A. Van Leeuwen
International Business Machines Corporation
Intellectual Property Law Department
11400 Burnet Road
Austin, TX 78758

EXAMINER

ROSSOSHEK, YELENA

ART UNIT

PAPER NUMBER

2825

DATE MAILED: 11/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/668,385	LALONDE ET AL.	
	Examiner	Art Unit	
	Helen Rossoshek	2825	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-53 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10, 13-22, 25-35, 38-46 and 48-53 is/are rejected.
- 7) ☒ Claim(s) 11, 12, 23, 24, 36, 37 and 47 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>9/23/03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is in response to the Application 10/668,385 filed 09/23/2003.

2. Claims 1-53 are pending in the Application.

Specification

3. The abstract of the disclosure is objected to because abstract exceeds 150 words. Correction is required. See MPEP § 608.01(b).

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed **150 words** in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "the," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Claim Objections

4. Claims 1, 2, 7-9, 18-20, 26, 27, 32-34, 43-44 and 51 are objected to because of the following informalities:

Claim 34 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claims 9, 19, 20, 34, 43, 44 have to be modified to clearly identify what is being claimed. Examiner's suggestion is to replace phrase "can be" with --is--

Claims 1, 2, 7, 8, 18, 26, 27, 32, 33, 51 have to be modified to clarify functionality in the limitations, since these claims contain not a positive limitations having phrase "adapted to".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 6, 21, 31 and 45 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. It is not clear what the Applicant intent to mean by "abstract class".

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-11, 13-22, 25-36, 38-46, 48-53 are rejected under 35 U.S.C. 102(b) as being anticipated by Kamdar (US Patent 5,636,132).

With respect to claims 1, 26, 50 Kamdar teaches a software system for constrained graphs, the system implemented in accordance with an object-oriented design framework within computer system shown on the Fig. 3 for implementation an integrated circuit design, including programming code as an application (software) (col. 4, ll.21-25; col. 6, ll.19-21; col. 4, ll.40-44; col. 13, ll.8-10), wherein the graph is constructed using a plurality of graphical elements such as a constraint graph to represent a layout components of the integrated circuit (col. 5, ll.10-14), the system comprising: a plurality of subgraph classes, wherein an instance of each of the subgraph classes comprises a predefined grouping of one or more of the graphical elements representative of a subgraph type within nodes in the graph representing the layout components, wherein each node is given a value which represents the current position of its corresponding component (col. 5, ll.47-49), wherein constraint components are grouped according to their position in the graph using a logical boundary constraints (col. 9, ll.35-38, 42-43; col. 10, ll.60-65; col. 6, ll.58-62); and each of the plurality of subgraph classes adapted to: reposition the graphical elements of a

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subgraph within the graph, the subgraph represented by an instance of one of the plurality of subgraph classes within an ability of the compactor of the integrated circuit design method and apparatus to move components in the circuit layout in the form of the graph nodes (col. 5, ll.50-52, ll.57-60); and initiate a repositioning of the graphical elements of subgraphs affected by the repositioning of the graphical elements of the subgraph represented by the instance of the one of the plurality of subgraph classes within the compaction process performing the movement of the graph nodes in the circuit layout (col. 10, ll.66-67; col. 11, ll.1-6, ll.12-15).

With respect to claims 19, 43 Kamdar teaches a software system for use in the design of software applications in which a constrained graph is displayed, the system implemented in accordance with an object-oriented design framework within computer system shown on the Fig. 3 for implementation an integrated circuit design, including programming code as an application (software) (col. 4, ll.21-25; col. 6, ll.19-21; col. 4, ll.40-44; col. 13, ll.8-10; col. 14, ll.26-27), wherein the graph is constructed using a plurality of graphical elements within nodes in the graph representing the layout components, wherein each node is given a value which represents the current position of its corresponding component (col. 5, ll.47-49), the system comprising: a first subgraph class, wherein the first subgraph class can be extended to define a plurality of second subgraph classes, wherein an instance of each of the second subgraph classes represents a subgraph of a specific subgraph type within computer system depicted on the Fig. 3 for implementing an integrated circuit design method and apparatus, wherein the computer system includes an operating system, currently running application

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program (software), main memory containing video display memory for displaying images through a display output device (col. 4, ll.20-24; ll.40-44; ll.63-67) wherein each subgraph of a specific subgraph type is composed of a predefined grouping of one or more of the graphical elements within constraint components which are grouped according to their position in the graph using a logical boundary constraints (col. 9, ll.35-38, 42-43; col. 10, ll.60-65; col. 6, ll.58-62), and wherein each of the plurality of second subgraph classes implements one or more first methods for repositioning the graphical elements of a subgraph represented by an instance thereof within the graph and determining affected subgraphs within an ability of the compactor of the integrated circuit design method and apparatus to move components in the circuit layout in the form of the graph nodes (col. 5, ll.50-52, ll.57-60), displaying the graphical elements of a subgraph represented by an instance thereof to the user in a specified layout format (col. 4, ll.40-44; col. 14, ll.26-27), and commanding a repositioning and display of the graphical elements of the affected subgraphs within the compaction process performing the movement of the graph nodes in the circuit layout (col. 10, ll.66-67; col. 11, ll.1-6) wherein the user defines constraints available to user of compaction tools (col. 11, ll.12-14).

With respect to claims 44 and 49 Kamdar teaches a method of displaying a constrained graph within the method for constraining compaction of the integrated circuit design layout (abstract), wherein the graph is constructed using a plurality of graphical elements such as a constraint graph to represent a layout components of the integrated circuit (col. 5, ll.10-14; col. 14, ll.26-27), the graph constructed using a

plurality of graphical elements, wherein a first subgraph class is defined that can be extended to define a plurality of second subgraph classes, wherein an instance of each of the second subgraph classes represents a subgraph of a specific subgraph type (col. 10, ll.60-67), wherein each subgraph of a specific subgraph type is composed of a predefined grouping of one or more of the graphical elements within nodes in the graph representing the layout components, wherein each node is given a value which represents the current position of its corresponding component (col. 5, ll.47-49), wherein constraint components are grouped according to their position in the graph using a logical boundary constraints (col. 9, ll.35-38, 42-43; col. 10, ll.60-65; col. 6, ll.58-62), and wherein each of the plurality of second subgraph classes implements one or more first methods for repositioning the graphical elements of a subgraph represented by an instance thereof within the graph and determining affected subgraphs within the compaction process performing the movement of the graph nodes in the circuit layout (col. 10, ll.66-67; col. 11, ll.1-6), displaying the graphical elements of a subgraph represented by an instance thereof to the user in a specified layout format (col. 4, ll.40-44), and commanding a repositioning and display of the graphical elements of the affected subgraphs, the method comprising: identifying a plurality of subgraphs in the graph; receiving an identifier of an input subgraph in the graph within nodes in the graph representing the layout components, wherein each node is given a value which represents the current position of its corresponding component (col. 5, ll.47-49; col. 14, ll.26-27); determining from the identifier a selected subgraph to be shifted (col. 10, ll.60-67); and commanding a repositioning and display of the graphical elements of the

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selected subgraph by calling the one or more first methods implemented by the second subgraph class of which the selected subgraph is an instance within the compaction process performing the movement of the graph nodes in the circuit layout (col. 10, ll.66-67; col. 11, ll.1-6) wherein the user defines constraints available to user of compaction tools (col. 11, ll.12-14); whereby a plurality of subgraphs in the graph are identified, and the repositioning and display of the graphical elements of a plurality of subgraphs in the graph is initiated by commanding the repositioning and display of the graphical elements of a selected subgraph in the graph within the system's ability for the user to interact with process of the integrated circuit design and particularly with the compactor by selecting and specifying the layout components and their positions or repositioning (col. 10, ll.21-24; col. 14, ll.26-27).

With respect to claims 2-10, 13-18, 20-22, 25, 27-35, 38-42, 45, 46, 48, 51-53 Kamdar teaches:

Claims 2, 27, 51: each of the plurality of subgraph classes is further adapted to: display the graphical elements of a subgraph represented by the instance of the one of the plurality of subgraph classes to a user in a specified layout format within computer system shown on the Fig. 3 for implementation an integrated circuit design, including programming code as an application (software) (col. 4, ll.21-25; col. 6, ll.19-21; col. 4, ll.40-44; col. 14, ll.26-27);

Claims 3, 28, 40: specified layout format comprises a layout selected from the following group: a horizontal layout and a vertical layout (col. 6, ll.18-21);

Claims 4, 29, 41: specified layout comprises a directional layout as shown on the Fig. 2B (col. 3, ll.18-24);

Claims 5, 30: further comprising a first subgraph class wherein the first subgraph class is extended to define the plurality of subgraph classes within computer system shown on the Fig. 3 for implementation an integrated circuit design, including programming code as an application (software) (col. 4, ll.21-25; col. 6, ll.19-21; col. 4, ll.40-44);

Claims 6, 21, 31, 45: wherein the first subgraph class comprises an abstract class by giving the value to each node in the graph which represents the current position of its corresponding component (col. 5, ll.47-49);

Claims 7, 32, 52: further comprising: a layout manager adapted to: initiate the repositioning and display of the graphical elements of a plurality of subgraphs in the graph by commanding the repositioning and display of the graphical elements of a selected subgraph in the graph within the compactor for performing compaction of the layout by moving (repositioning) the components in the integrated circuit layout, wherein the compactor is provided with the data by user (commanding) to how the compaction needs to be done (col. 8, ll.12-14 col. 10, ll.66-67; col. 11, ll.1-6, ll.12-15; col. 14, ll.26-27);

Claims 8, 20, 22, 33, 46, 53: wherein the layout manager is further adapted to: identify a plurality of subgraphs in the graph within nodes in the graph representing the layout components, wherein each node is given a value which represents the current position of its corresponding component (col. 5, ll.47-49); receive an identifier of an

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input subgraph in the graph (col. 5, ll.47-49); determine from the identifier a selected subgraph to be shifted (col. 10, ll.60-67); and command the selected subgraph to reposition and display the graphical elements within the compaction process performing the movement of the graph nodes in the circuit layout (col. 10, ll.66-67; col. 11, ll.1-6; col. 14, ll.26-27) wherein the user defines constraints available to user of compaction tools (col. 11, ll.12-14);

Claims 9, 34: further comprising a first layout manager class, which can be extended to define one or more second layout manager classes within computer system depicted on the Fig. 3 for implementing an integrated circuit design method and apparatus, wherein the computer system includes an operating system, currently running application program (software), main memory containing video display memory for displaying images through a display output device (col. 4, ll.20-24; ll.40-44; ll.63-67; col. 14, ll.26-27); and wherein the layout manager comprises an instance of a second layout manager class within variety of arrangements of the elements of the computer system (col. 4, ll.62-67);

Claims 10, 35: wherein the selected subgraph determined from the identifier comprises the input subgraph within the pre-compaction constraints to set the initial topology for further inputting into the compactor (col. 11, ll.25-30), wherein user has a freedom of selecting the components to be processed (col. ll.58-60);

Claims 13, 25, 38, 48: wherein data associated with subgraphs identified by an instance of the second layout manager class is stored in a map, and wherein the map is used by instances of the second subgraph classes in determining affected subgraphs

within system (including compactor) ability to feasibly capture a designer's layout for further reuse, each time the changes are performed to the layout (col. 3, ll.50-54);

Claims 14, 39: the map comprises a hash map within capturing multiple layouts (col. 3, ll.50-54);

Claim 15: wherein the repositioning of the graphical elements of the specific subgraph requires that the graphical elements be shifted either horizontally or vertically in the graph (col. 6, ll.18-21);

Claim 16: the specified layout comprises a directional layout as shown on the Fig. 2B (col. 3, ll.18-24);

Claims 17, 42: wherein a subgraph comprises a further subgraph within compaction process performing in the iterations as a loop (col. 5, ll.44-50);

Claim 18: wherein each of the plurality of second subgraph classes is further adapted to determine data properties for instances thereof, the data properties selected from the following group: height of subgraph, width of subgraph, location of subgraph on a display device, connections going into a subgraph, and connections going out of a subgraph (col. 5, ll.38-40; ll.48-50).

Allowable Subject Matter

Claims 11, 12, 23, 24, 36, 37, 47 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Prior art of record does not teach the instance of a second layout manager class, which is created when one or more graphical elements are added to or deleted from the graph as claimed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Helen Rossoshek whose telephone number is 571-272-1905. The examiner can normally be reached on 7:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew S. Smith can be reached on 571-272-1907. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Examiner
Helen Rossoshek
AU 2825


LEIGH M. GARBOWSKI
PRIMARY EXAMINER